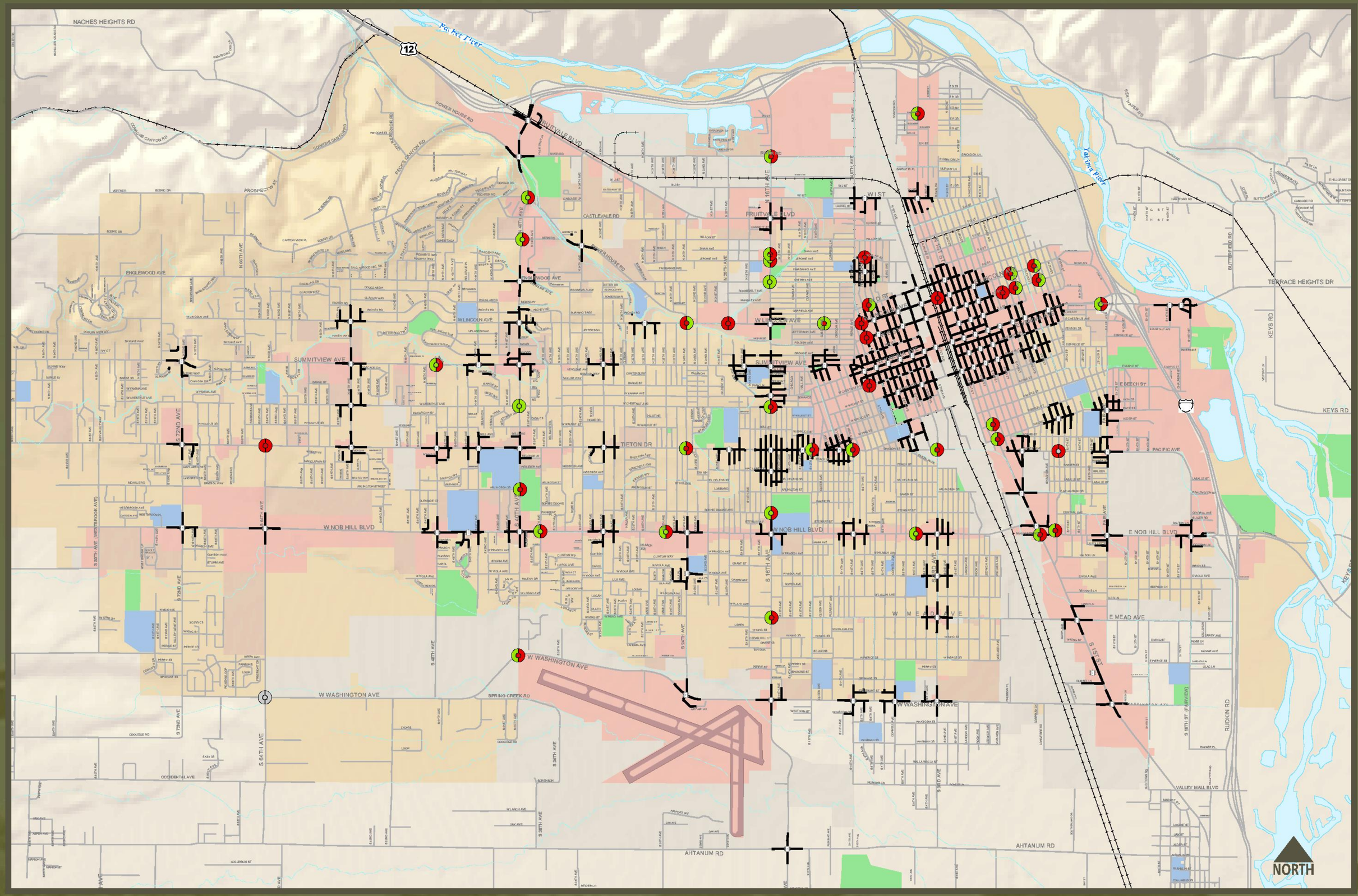
INTERSECTION ANALYSIS

Does this intersection need a traffic signal? Or something else?



MAP OVERVIEW

The installation of a traffic signal is one of the most frequently requested traffic improvements. Many people believe that a traffic signal will make an intersection safer and more efficient. Not all locations should be signalized. A number of specific critieria (called Signal Warrants) must be met before the City will consider the potential installation of a traffic signal.

This map identifies street intersections that have been evaluated regarding minimum traffic signal warrants. Each location would require a full analysis prior to further consideration. Alternatives to a traffic signal may be evaluated as well.

Traffic signals are an important form of right of way control. Not all locations are suitable for signals, which can increase vehicle delay and are expensive to install.

SIGNAL WARRANT CRITERIA

The decision to install a traffic signal is guided by a series of criteria established in the Manual on Uniform Traffic Control Devices (MUTCD), published by the U. S. Federal Highway Administration. The 2000 Edition of the MUTCD includes criteria for 8 signal Warrants. Satisfication of one or more criteria does not mean a traffic signal should be installed in all cases. An engineering study should be preformed prior to installation of any new signal. However, identification of locations which meet some of the minimum warrants allows prioritizing, planning and public review of possible locations for new traffic signals.

This map evaluates data related to four of the eight criteria from the Traffic Signal Warrants of the MUTCD. The other four Warrant criteria require site specific data and studies.

Peak Hour Volume Warrant

This criteria was determined to be met when the intersection had a minimum of 18,300 total entering volume of vehicles during the PM peak hour for all approaches. This Warrant is intended to be applied on it's own only in unusual cases. Such cases would include office complexes or industrial plants that attract or discharge a large number of vehicles over a short period of time. As a general indicator, the Peak Hour Warrant is used to measure high traffic intersections.

Eight Hour Volume Warrant

For purposes of comparing locations, a minimum volume of 900 vehicles entering the intersection per hour for 8 hours must be met. This is a combined total of traffic from all approaches and represents a general guide for investigation of traffic patterns at these locations.

Crash Experience Warrant

This warrant requires five or more collisions within a 12 month period of the type which may be reduced by installation of a traffic signal. Typically, this includes right angle type collisions such as approach turn and and broadside crashes. A minimum of 19 collisions over the five year period was used for the criteria for this map. Further examination of the collision history would be necessary.

SIGNAL SPACING CRITERIA

Coordinated Signal System Warrant

Progressive movement in a coordinated signal system sometimes necessitates installation of a traffic control signal where they would otherwise not be needed in order to maintain proper platooning of vehicles. For the purposes of this map, a minimum buffer of 500' was drawn around all existing traffic signals. New signals within this 500' buffer would not help progression of traffic in most cases.

Intersections for Signal or Access Management

Un-Signalized Intersection	Accid 1998-2002	ADT	Peak Hr Vol	8-Hr Min Vol	Collision rate MEV	Injury Severity	Broadside & Appr Turn Accid
N 16th Ave & River Rd	51	19900	1731	796	1.40	152.0	17
N 16th Ave & Englewood Ave	50	23575	2051	943	1.16	131.0	27
N Fair Ave Loop & E Yakima Ave	48	27800	2419	1112	0.95	110.0	19
S 1st St & Ranch Rite Rd	43	20900	1818	836	1.13	76.5	17
N 40th Ave &Powerhouse Rd	41	25100	2184	1004	0.90	63.5	9
N Custer Ave & W Lincoln Ave	38	16150	1405	646	1.29	108.0	25
N 8th St & E B St	36	13800	1201	552	1.43	90.0	32
S 40th Ave & W Chestnut Ave	35	22900	1992	916	0.84	114.0	24
N 6th St & E B St	33	9800	853	392	1.85	74.5	26
N 5th Ave & W D St	32	13600	1183	544	1.29	94.0	24
N 8th St & E Lincoln Ave	31	11100	966	444	1.53	59.0	26
N 40th Ave & Kern Rd	29	26350	2292	1054	0.60	100.5	5
S 6th St & E Nob Hill Blvd	29	20750	1805	830	0.77	62.5	17
N 6th St & E Lincoln Ave	26	13650	1188	546	1.04	79.5	21
S 6th St & E Pacific St	26	8950	779	358	1.00	79.0	1
N 16th Ave & W Bonnie Doone Ave	25	23100	2010	924	0.59	65.5	2
N 16th Ave & W Chestnut Ave	25	22500	1958	900	0.61	72.5	14
N 16th Ave & W Swan Ave	25	20200	1757	808	0.68	71.5	10
S 16th Ave & W Mead Ave	25	17825	1551	713	0.77	52.0	17
N 24th Ave & W Lincoln Ave	25	15500	1349	620	0.88	51.0	20
S 24th Ave & Tieton Dr	24	18300	1592	732	0.72	58.5	16
N 6th Ave & Lincoln Ave	23	14800	1288	592	0.85	64.0	13
S 3rd Ave & Division St	22	19700	1714	788	0.61	45.5	12
N 16th Ave & Jerome Ave	21	23700	2062	948	0.49	64.5	11
S 26th Ave & W Nob Hill Blvd	20	25300	2201	1012	0.43	56.5	6
N 1st St & E Tamarack Ave	20	22500	1958	900	0.49	54.0	8
S 12th Ave & Tieton Dr	20	17800	1549	712	0.62	44.5	17
S 40th Ave & W Washington Ave	20	17470	1520	699	0.63	60.0	12
S 5th Ave & W Nob Hill Blvd	19	25000	2175	1000	0.42	52.0	5
S 38th Ave & W Nob Hill Blvd	19	24100	2097	964	0.43	63.5	11
S 40th Ave & W Arlington St	18	19500	1697	780	0.51	41.5	7
S 48th Ave & Summitview Ave	13	23475	2042	587	0.31	23.0	6
S 64th Ave & Tieton Dr	12	15250	1327	381	0.23	17.0	5

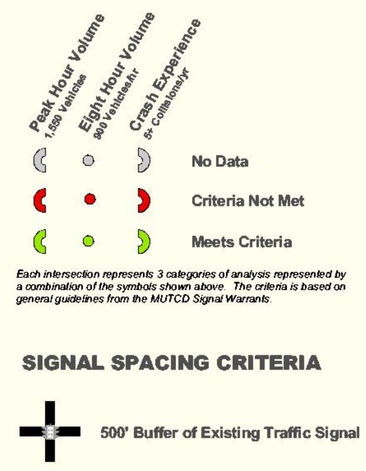
ACCESS MANAGEMENT

Installation of a traffic signal is usually reserved for locations which meet, at a minimum, Warrant 1 (8-Hour Volume) or Warrant 7 (Crash Experience). When a traffic signal is not the preferred solution to an interection problem, a number of other approaches may be considered for installation. Turn restrictions may help reduce collisions. Stop signs or a roundabout may also offer relief.

Restriction of access or turning movements may reduce right angle collisions. Narrowing the street may reduce speed related problems.

MAP LEGEND

SIGNAL WARRANT CRITERIA



Each intersection represents 3 categories of analysis represented by a combination of the symbols shown above. The criteria is based on general guidelines from the MUTCD Signal Warrants.

SIGNAL SPACING CRITERIA

500' Buffer of Existing Traffic Signal

GENERAL LAND USE

- Low Density Residential
- High Density Residential
- Retail/Commercial
- Industrial
- Parks
- Schools

0 0.25 0.5 1 Miles

July 24th, 2003

YAKIMA URBAN AREA - TRANSPORTATION PLAN UPDATE

City of Yakima, Washington, Public Works Department, 2301 Fruitvale Blvd, Yakima, WA 98902, http://www.ci.yakima.wa.us/services/streets